Pine Point Confirmation & Exploration Project

Type A Water Licence Application MV2020L8-0012

Hay River, NT, June 15-17

Government of
Northwest Territories

Overview

- Annual Report
- Groundwater Management Plan
- Fish Presence in Pits
- Water Quality Compatibility Criteria
- Wastewater Treatment & Offsite Waste Disposal
- Surveillance Network Program
- Reclamation Security
- Wildlife Management and Monitoring Plan

Annual Report

- GNWT identified pump test information that warrants reporting in the Annual Report.
- PPML noted pump test information would be included.

Annual Report

1. GNWT recommends that the following items are reported by PPML within the Annual Water Licence report:

a) Location of testing (GPS and map);

b) Dates and duration of testing;

c) Quantity of water removed from source and location of source;

d) Quantity of water discharged and location of discharge;

e) Water quality sampling results for source and discharge locations;

f) Result of monitoring conducted during testing and description of any adaptive management actions triggered; and

g) Demonstration that water transfer criteria were achieved for each test.

Groundwater Management Plan

- PPML provided additional information to be included in the GMP.
- The GMP should also include:
  - Descriptions and locations
  - Monitoring program methodology
  - Reporting requirements; and
  - Water quality compatibility criteria protocol

Groundwater Management Plan

2. GNWT recommends that a Groundwater Management Plan be submitted for review and Board approval 60 days prior to commencing any hydrogeological investigations.

Groundwater Management Plan Uncertainties

- Limited understanding of pit and groundwater quality and spatial variability.
- Pit and well locations for testing are not defined.
- Precautionary approach to waters discharged necessary to limit potential impacts.

Groundwater Management Plan Uncertainties

- No groundwater quality data presented in the April memo.
- Implementation of the GMP remains unclear.

Groundwater Management Plan Uncertainties

- Details lacking in compatibility assessment:
  - Influence of pit chemocline
  - Depth-average TDS concentration and specific conductivity TDS relationship
  - Guidelines referenced
  - Upper bound calculation

Groundwater Management Plan Uncertainties

- Upper bound calculation
  - Does not consider recent changes in water quality.
  - Could result in allowable concentrations in source that are substantially higher than in the receiving water body.
  - Data collected just prior to groundwater testing should be used, rather than a historical dataset.

Groundwater Management Plan Uncertainties

- Details lacking in compatibility assessment:
  - Well to well and pit to well compatibility assessments do not consider an evaluation against guidelines that are protective of the receiving environment.
  - The compatibility assessment should be applied to samples collected prior to testing, not those from the historical water quality database.

Groundwater Management Plan Uncertainties

3. GNWT recommends that the Groundwater Management Plan be updated to clarify and resolve the uncertainties summarized here:

- Inclusion of pit chemocline influence on the compatibility assessment.
- Description of methodology for the development of the depth-average TDS concentration and specific conductivity - TDS relationship.

Groundwater Management Plan Uncertainties

- Clarification on which guidelines are being referenced in Figure B1 of the April memorandum.
- Clarification on methodology for the calculation of the upper bound.
- The well to well and pit to well scenarios should consider an evaluation against appropriate guidelines that are protective of the receiving environment.
- The compatibility assessments should be made between samples collected prior to groundwater testing, and not in relation to the database presented in the April memorandum.

Fish Presence in Pits

- Receiving water quality, and potential fish presence in pits have not been sufficiently assessed.
- Fish presence surveys will be conducted prior to transfers.
- Acute toxicity testing will occur for the source pit water that has passed the proposed two-step screening process.
- GNWT is satisfied with the commitment to screen for fish presence prior to conducting water transfers.

Fish Presence in Pits

4. GNWT recommends the Water Licence include a condition that requires fish presence determinations in a pit prior to water being discharged into it.

Fish Presence in Pits

5. GNWT recommends that source water for discharge to pits confirmed to have fish present must have parameter concentrations equal to, or lower than the concentrations in the receiving pit or parameter concentrations that are below CCME Guidelines for the Protection of Aquatic Life.

6. GNWT recommends that existing pits be considered the receiving environment, and that PPML be responsible for protecting the environment within and surrounding these pits (aquatic and otherwise).

Water Compatibility Criteria

- Water transfer criteria should be adjusted to protect the receiving environment and not degrade receptor water quality.
- Accept 30% difference between source and receptor water quality provided additional recommendations are implemented.
- Precautionary elements account for the uncertainties, potential for changes in water quality during pumping, and protecting the environment.

Water Compatibility Criteria

7. GNWT recommends that water transfers from pit to pit, well to well and pit to well, be conducted in accordance with the Groundwater Management Plan and subject to the following additional conditions:

a) Not occur in pits containing fish unless source water concentrations are equal to, or lower than, parameter concentrations in the receiving pit or source water concentrations that are below CCME Guidelines for the Protection of Aquatic Life.

b) Water transfers shall not result in temporary flooding or drying up of nearby waterbodies as confirmed through visual monitoring;

Water Compatibility Criteria

c) There is a less than 30% difference in Total Dissolved Solids concentration between the source and receiving water locations, and

d) Source water quality for individual parameters have less than 30% difference in source water and receptor water quality concentrations (for all parameters that have a CCME Water Quality Guidelines for the Protection of Aquatic Life guideline value).

Water Compatibility Criteria

8. GNWT recommends that if condition b), c) and d) cannot be achieved, PPML may submit a request, for review and Board approval, that describes with supporting analysis, how the water transfer will be conducted in a manner that mitigates against potential impacts to surface water.

9. GNWT recommends that PPML describe how water quality will be monitored during testing to ensure that poor quality water is not discharged as a result of changing water conditions during recharge of the source water pit.

Wastewater Treatment

- PPML has not yet provided details on their proposed options for management of sewage.
- GNWT recommendations are based on the information provided to date.

Wastewater Treatment

10. GNWT recommends that the Water Licence include conditions for a modular wastewater treatment plant for the treatment of camp sewage.

11. GNWT recommends that the Max Grab EQC for the discharge from the wastewater treatment plant be set as follows:

- Fecal Coliforms 20 CFU/100 mL
- Carbonaceous Biological Oxygen Demand (CBODs) 25 mg/L
- Total Suspended Solids 25 mg/L
- pH 6 to 9

Offsite Waste Disposal

- Landfarm and Associated Contact Water
  - PPML noted that the landfarm is a contingency option.
  - It is unclear how hydrocarbon-contaminated soil, or associated contact water will be handled on site.

Offsite Waste Disposal

12. GNWT recommends that the MVLWB not include authorization for a landfarm in the Water Licence at this time.

13. GNWT recommends that the Water Licence should require submission of a revised Waste Management Plan 30 days after issuance and PPML revise the Plan to specify that hydrocarbon-impacted material and its associated contact water will be shipped to an offsite facility for appropriate disposal.

Offsite Waste Disposal

- Vehicle Wash Station
  - Application noted vehicle wash water would be captured, treated, and discharged to a sump.
  - PPML later stated “the first option would be to send it offsite.”

Offsite Waste Disposal

14. GNWT recommends that the Water Licence should require submission of a revised Waste Management Plan 30 days after issuance and PPML revise the Plan to state that the runoff water from the vehicle wash station will be shipped offsite to an appropriate disposal facility.

Surveillance Network Program

- Type A WL trigger was the volume of water for groundwater testing.
- Key operational monitoring should be required as a condition of the water licence, as part of the SNP.
- Compliance monitoring conducted for increases in toxicity.
- Monitor source water transfers to ensure it remains compatible with the receiving water.

Surveillance Network Program

15. GNWT recommends that the list of proposed locations for groundwater testing be provided for review and approval to the Board 60 days before testing begins.

16. GNWT recommends that PPML provide a SNP containing water quality monitoring locations, sampling parameters and sampling frequency for review and approval for inclusion in the Water Licence. The SNP should include both the source and receiving water bodies involved in groundwater testing, as well as nearby water bodies that could be hydrologically connected.

Reclamation Security

- PPML's security estimate is reasonable for the proposed scope. The estimate included acceptable closure costs for the current project stage.
- GNWT did provide some areas of adjustment:
  - PPML's inflation adjustment,
  - updated total waste fuel volumes,
  - inclusion of a temporary water pipeline,
  - adjustment of revegetation based on PPML's IR #8 response,
  - updated costs to grade previously undisturbed areas.

Reclamation Security

17. GNWT recommends that the total security estimate for the project be set to $1,060,755 with a land and water liability split set at $743,457 and $317,298, respectively.

Wildlife Management and Monitoring Plan

- Minister of ENR has determined that an approved Tier 1 Wildlife Management and Monitoring Plan will be required.
- GNWT recognizes PPML's commitments to include additional mitigation and monitoring approaches to minimize impacts to boreal caribou from sensory disturbance during sensitive periods and habitat loss, and an approved WMMP will allow ENR to ensure that PPML implements those commitments.

Wildlife Management and Monitoring Plan

- It is expected that the WMMP submitted by PPML for approval by the Minister of ENR will address all comments made on the Wildlife Protection Plan – Ver. 1.0 received throughout the process to date.

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